

Amendments to the Specification

[0016] FIG. 1 shows a nozzle 20 for lubricating/cooling a bit 22 held by a spindle 24 of a machine tool 25 (FIG. 2). An exemplary bit is a superabrasive quill. The bit has a shaft with a distal doubly convex (e.g., hemispherical) head 26 and distal shaft portion 28 which have an abrasive coating or embedded abrasive particles (e.g., plated cubic boron nitride or diamond grit). The bit has an intermediate enlarged portion 30 having flats (not shown) for gripping by a tool and a proximal portion (not shown) for mounting the bit to the spindle. The nozzle has a front surface 40 (FIG. 2) and a back surface 42. The back surface may include features (e.g., a channel 44) for mating to complementary features of the machine tool front to register the nozzle in an operative position in precise alignment with the machine tool. Securing means may be provided such as mounting apertures 46 (FIG. 1) for receiving studs protruding from the machine tool or fasteners extending into the machine tool to removably secure the nozzle registered in the operative position. Alternatively, a clamping mechanism may be used in conjunction with an automated tool changer. In the operative position the nozzle has an aperture 50 encircling a central longitudinal axis 500 of the spindle and bit. The aperture is, in principal part, defined by an internal surface 52 in close spaced part relation to the bit intermediate portion 30 (e.g., with a radial clearance of up to about 1cm, more narrowly 5mm). In the exemplary embodiment, a forward portion 56 of the spindle is received within a recess 58 in the nozzle aft surface. In the exemplary embodiment, the recess 58 surrounds the spindle forward portion with an appropriate radial clearance and is connected via passageways 60 (FIG. 1) to the nozzle lateral periphery. The passageways 60 permit passage of cooling air to reach the spindle.